

## CLAIMS

We claim:

1. A method of cache partitioning, comprising:  
partitioning a cache into a plurality of cache partitions;  
assigning a first cache partition of the plurality of cache partitions as a private cache for a first entity;  
assigning a second cache partition of the plurality of cache partitions as a private cache for a second entity;  
monitoring a characteristic in each of the first cache partition and the second cache partition; and  
reallocating a size of the first cache partition if the characteristic of the first cache partition crosses an upper threshold and the characteristic of the second cache partition crosses a lower threshold.
2. The method, as set forth in claim 1, comprising monitoring a characteristic in a third cache partition of the plurality of cache partitions and wherein reallocating comprises reallocating the size of the first cache partition based on the characteristic of each of the first cache partition, the second cache partition and the third cache partition.
3. The method, as set forth in claim 1, wherein monitoring comprises monitoring a hit average in each of the first cache partition and the second cache partition.
4. The method, as set forth in claim 1, wherein monitoring comprises monitoring a ratio of number of hits to misses in each of the first cache partition and the second cache partition.
5. The method, as set forth in claim 1, comprising reallocating a size of the second cache partition if the characteristic of the first cache partition crosses an upper threshold and the characteristic of the second cache partition crosses a lower threshold.

6. The method, as set forth in claim 1, further comprising reallocating the number of the plurality of cache partitions.

7. A partitioned cache system, comprising:  
a plurality of cache partitions wherein a first of the plurality of cache partitions is assigned as a private cache for a first entity and a second of the plurality of cache partitions is assigned as a private cache for a second entity; and  
a controller configured to monitor a first characteristic in the first of the plurality of cache partitions and a second characteristic in the second of the plurality of cache partitions and to reallocate a size of the first cache partition if the characteristic of the first of the plurality of cache partitions crosses an upper threshold and the characteristic of the second of the plurality of cache partitions crosses a lower threshold.

8. The system, as set forth in claim 7, wherein the plurality of cache partitions comprises a third cache partition and wherein the controller is configured to monitor a characteristic in the third cache partition and to reallocate the size of the first cache partition based on the characteristic of each of the first cache partition, the second cache partition and the third cache partition.

9. The system, as set forth in claim 7, wherein the controller is configured to monitor a hit average in each of the first cache partition and the second cache partition.

10. The system, as set forth in claim 7, wherein the controller is configured to monitor a ratio of number of hits to misses in each of the first cache partition and the second cache partition.

11. The system, as set forth in claim 7, wherein the controller is configured to reallocate a size of the second cache partition if the characteristic of the first cache partition crosses an upper threshold and the characteristic of the second cache partition crosses a lower threshold.

12. The system, as set forth in claim 7, wherein the controller is configured to reallocate the number of the plurality of cache partitions.

13. A cache-based system, comprising:

a plurality of entities; and

a cache, comprising:

a plurality of cache partitions wherein a first of the plurality of cache partitions is assigned as a private cache for a first entity and a

second of the plurality of cache partitions is assigned as a private cache for a second entity; and

a controller configured to monitor a first characteristic in the first of the plurality of cache partitions and a second characteristic in the second of the plurality of cache partitions and to reallocate a size of the first cache partition if the characteristic of the first of the plurality of cache partitions crosses an upper threshold and the characteristic of the second of the plurality of cache partitions crosses a lower threshold.

14. The system, as set forth in claim 13, wherein the plurality of cache partitions comprises a third cache partition and wherein the controller is configured to monitor a characteristic in the third cache partition and to reallocate the size of the first cache partition based on the characteristic of each of the first cache partition, the second cache partition and the third cache partition.

15. The system, as set forth in claim 13, wherein the controller is configured to monitor a hit average in each of the first cache partition and the second cache partition.

16. The system, as set forth in claim 13, wherein the controller is configured to monitor a ratio of number of hits to misses in each of the first cache partition and the second cache partition.

17. The system, as set forth in claim 13, wherein the controller is configured to reallocate a size of the second cache partition if the characteristic of the

first cache partition crosses an upper threshold and the characteristic of the second cache partition crosses a lower threshold.

18. The system, as set forth in claim 13, wherein the controller is configured to reallocate the number of the plurality of cache partitions.